THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY (BSC IT M12)

ICS 2302: SOFTWARE ENGINEERING

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: OCTOBER 2012
TIME: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer Booklet*

This paper consist of **FIVE** questions
Answer question **ONE** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

SECTION A (COMPULSORY)

Question One (20 marks)

a) Differentiate between software engineering and software re-engineering. **(4 marks)**

b) (i) With the context of software design, explain what is meant by the terms cohesion and coupling. **(4 marks)**

(ii) How are the concepts cohesion and coupling useful in arriving at good software design? **(4 marks)**

c) State **TWO** factors to be considered when selecting a programming language. **(4 marks)**

d) The process of software development can be complex hence challenging. Explain how the following techniques are applied in reducing the complexity and minimize the challenge.
i) Software project management **(4 marks)**
ii) Configuration management

iii) Software quality assurance

e) Define the following terms: **(4 marks)**
   i) Validation
   ii) Verification

SECTION B (Answer Any Two Questions)

Question Two (20 marks)

a) List and explain the major responsibilities of a software project manager. **(4 marks)**

b) Software maintenance has become an important activity of a large number of organizations.

Explain the different types of maintenance that a software product management need. **(8 marks)**

c) Explain the terms CASE tool and CASE environment. **(6 marks)**

Question Three (20 marks)

a) A specialist bookshop, wishing to enter the online services market, would like to develop an online ordering system within the next six months. Identify and compare **TWO** viable but distinct process models that might be used for this particular project. **(10 marks)**

b) Describe **FOUR** types of non-functional requirements that may be placed on a system. Give examples of each of these types of requirements. **(8 marks)**

c) State any **TWO** factors to be considered when selecting a programming language. **(2 marks)**

Question Four (20 marks)

a) A software development life cycle is a structure imposed on the development of a software product. Discuss the **SIX** activities carried out in software development life cycle. **(6 marks)**

b) Explain how both the waterfall model of the software development and the prototyping model can be accommodated in the spiral process model. **(6 marks)**

c) Describe **FOUR** types of non-functional requirements that may be placed on a system. Give examples of each of these types of requirements. **(8 marks)**

Question Five (20 marks)

a) Software testing is one of major approaches in software development. Discuss the **FIVE** software testing strategies. **(10 marks)**

b) The goal of the requirements engineering process is to create and maintain a system requirements document. The overall process includes **FOUR** high level requirements engineering sub-processes with the aid of a diagram illustrate the relationship between these activities. **(10 marks)**